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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/039,255	01/02/2002	Philip J. Kerly	42390P11902	9320

8791 7590 02/23/2005

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EXAMINER

NGUYEN, VAN H

ART UNIT PAPER NUMBER

2126

DATE MAILED: 02/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/039,255

Applicant(s)

KERLY, PHILIP J.

Examiner

VAN H NGUYEN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 10-13, 19-24 and 26-28 is/are rejected.
- 7) ☒ Claim(s) 5-9, 14-18, and 25 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>01/02/02</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is in response to the application filed on January 02, 2001.
2. Claims 1-28 are presented for examination. Claims 1, 10, 19, and 26 are independent claims.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 26-28 are rejected under 35 U.S.C. 101 because the claimed invention, appearing to be comprised of software alone without claiming associated computer hardware required for execution, is not supported by either a specific and substantial asserted utility (i.e., transformation of data) or a well established utility (i.e., a practical application).
5. Independent claim 26 does not appear to require any computer hardware to implement the claimed invention. This claim appears to define the metes and bounds of an invention comprised of software alone. There is no support (i.e., explicitly claimed computer hardware) in the body of claim 26 to support the “apparatus” of the preamble. Software alone, without a machine, is incapable of transforming any physical subject matter by chemical, electrical, or mechanical acts.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-4, 10-13, 19-24, and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Hollander et al.** (U.S. 6,823,460 B1) in view of **Horiguchi et al.** (U.S. 5,937,186).

8. **As to claim 1:**

- a. Hollander teaches the invention substantially as claimed including a method a method comprising:
- (i) intercepting an operating system thread creation request (*e.g., System Call Interception 24...intercepts all operating system calls; col.7, lines 15-17*) for a function (*e.g., system calls are requests make by user programs or by other system routines to run operating system routines, functions services; col. 7, lines 8-12*);
 - (ii) creating a thread in response to intercepting the operating system thread creation request (*e.g., instructing the o/S to create a process; col. 7, lines*

20-29), the thread including a stack (*e.g., the stack; col. 10, lines 12-18*);

and

(iii) executing the function utilizing the thread (*e.g., System Call Interception 24 also executes requests; col. 7, lines 30-37*).

- b. Hollander does teach a stack (*col. 10, lines 12-18*), but is silent on “modifying an initial stack pointer of the stack.”
- c. Horiguchi teaches and modifying an initial stack pointer of the stack (*e.g., updates the stack pointer...the modification of the stack pointer; col.9, lines 46-57*).
- d. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Hollander with Horiguchi because Horiguchi’s teachings would have provided the capability for processing asynchronous interrupts such that prologue portions of functions in a computer program may be asynchronously interrupted without compromising the invocation stack associated with the computer program.

9. **As to claim 2:**

Hollander teaches linking a dynamic-link library to a process (*e.g., when a process is created within a computer system, the DDL modules consisting of the API functions are loaded into the process address space; col.4, lines 5-10*), the process including a reference table (*e.g., a use predefined table; col.8, lines 6-8*); and initializing the dynamic-link library (*e.g., the threads thus created will utilize specific DLL; col.13, lines 1-5*).

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10. As to claim 3:

Hollander teaches the reference table includes a reference corresponding to an operating system thread creation function (*col.4, lines 5-24*) and initializing the dynamic-link library (*col.13, lines 1-5*) comprises replacing the reference corresponding to the operating system thread creation function with a reference corresponding to a substitute thread creation function (*col.6, lines 7-20*).

11. As to claim 4:

Hollander teaches intercepting an operating system thread creation request (*col.7, lines 15-17*) for a first function (*col. 7, lines 8-12*); creating a thread in response to intercepting the operating system thread creation request (*col. 7, lines 20-29*) comprises creating a thread for a second function (*col. 7, lines 39-41*); and executing the function utilizing the thread (*col. 7, lines 41-43*). Note the discussion of claim 1 above for modifying the initial stack pointer of the stack.

12. As to claims 10-13:

Note the rejection of claims 1-4 above. Claims 10-13 are the same as claims 1-4, except claims 10-13 are machine-accessible medium claims and claims 1-4 are method claims.

13. As to claims 26-28:

Note the rejection of claims 1-3 above. Claims 26-28 are the same as claims 1-3, except claims 26-28 are apparatus claims and claims 1-3 are method claims.

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14. As to claim 19:

- a. The rejection of claim 1 above is incorporated herein in full. Additionally, Hollander further teaches a processor (*e.g., a processor; col.7, line 13*); a first memory and a second memory (*e.g., system memory devices; col.7, lines 13-14*).
- b. Hollander does not specifically teach a virtually-addressable cache memory.
- c. Horiguchi teaches a virtually-addressable cache memory (*e.g., the RAM 608 is used to store, for example, invocation stacks associated with processes; col.4, lines 28-34*).
- d. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Hollander with Horiguchi because Horiguchi's teachings would have provided the capability for dramatically improving the performance of applications, because accessing a byte of data in RAM can be thousands of times faster than accessing a byte on a hard disk

15. As to claim 20:

Horiguchi teaches the initial stack pointer of the stack comprises a virtual address corresponding to a location within the virtually-addressable cache memory (*col.4, lines 28-29*).

16. As to claims 21-23:

Note the rejection of claim 2-4 above.

17. As to claim 24:

Hollander teaches the second function (*col. 7, lines 39-41*).

Allowable Subject Matter

18. Claims 5-9, 14-18, and 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
- (i) Hammond (U.S. 6779187) teaches "Method and system for dynamic interception of function calls to dynamic link libraries into a windowed operating system."
 - (ii) Deianov et al. (U.S. 6529985) teaches "Selective interception of system calls."
 - (iii) Spilo et al. (U.S. 6240531) teaches "System and method for computer operating system protection."
 - (iv) Jin et al. "An efficient solution to the cache thrashing problem caused by true data sharing" 1998 IEEE, pp. 527-543.
 - (v) Sudo et al. "distributed-thread scheduling methods for reducing page-thrashing" 1997 IEEE, pp. 356-364.

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20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to VAN H. NGUYEN whose telephone number is (571) 272-3765. The examiner can normally be reached on Monday-Thursday from 8:30AM - 6:00PM. The examiner can also be reached on alternative Friday.
21. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756.
22. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.
23. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any response to this action should be mailed to:

Commissioner for patents

P O Box 1450

Alexandria, VA 22313-1450



Van H. Nguyen